

AMENDMENTS IN THE CLAIMS:

1. (Currently Amended) An optical device comprising an input polariser (4) for passing light having a first polarisation direction (11), a polarisation modifying element (5) for receiving light of the first polarisation direction from the input polariser (4), and an output polariser (7) for analysing light from the polarisation modifying element (5), the polarisation modifying element (5) comprising at least first and second sets of regions (8,9) asymmetric with respect to the first polarization direction, each region (8) of the first set changing the polarisation of light from the input polariser (4) to a second polarisation direction different from the first polarisation direction and each region (9) of the second set supplying light of a third polarisation direction different from the second polarisation direction to output a non-uniform wavefront,

characterised in that the output polariser (7) cooperates with the polarisation modifying element (5) such that each first light path through each region (8) of the first set and the output polariser (7) has substantially the same attenuation and phase change to light from the input polariser (4) as each second light path through each region (9) of the second set and the output polariser (7) to output a uniform wavefront, and

~~characterised~~ in that the polarisation modifying element (5) comprises a patterned retarder, and wherein the output polariser (7) is arranged to transmit ~~the same equal~~ proportions of slow and fast axis components of light from each of the first and second sets of regions (8,9).

2. (Original) A device as claimed in claim 1, characterised in that the regions (8,9) of the first and second sets are interleaved and comprise first and second parallel strips, respectively.

3. (Original) A device as claimed in claim 2, characterised in that the first strips (8) have a first width and the second strips (9) have a second width greater than the first width.

4. (Previously Presented) A device as claimed in claim 1, characterised in that the second and third polarisation directions are substantially orthogonal.

5. (Previously Presented) A device as claimed in claim 1, characterised in that the third polarisation direction is the same as the first polarisation direction.

6. (Previously Presented) A device as claimed in claim 1, characterised by having an alternative mode of operation in which the output polariser (7) is arranged to pass light from the regions (8) of one of the first and second sets and to attenuate light from the regions (9) of the other of the first and second sets.

7. (Original) A device as claimed in claim 6, characterised in that the one of the first and second sets is the first set.

8. (Previously Presented) A device as claimed in claim 6, characterised in that the output polariser (7) is arranged substantially to block light from the other (9) of the first and second sets in the alternative mode.

9. (Canceled)

10. (Previously Presented) A device as claimed in claim 1, characterised in that the output polariser (7) is arranged to transmit only the slow axis component of light from the first and second sets of regions (8,9).

11. (Previously Presented) A device as claimed in claim 1, characterised in that the retarder (5) comprises a photo-polymerised polymer.

12. (Previously Presented) A device as claimed in claim 1, characterised in that the retarder (5) provides a half wave of retardation at a visible light frequency.

13. (Previously Presented) A device as claimed in claim 12, characterised in that the slow axis of each region (8) of the first set is oriented at 45° to the first polarisation direction and the slow axis of each region (9) of the second set is parallel to the first polarisation direction.

14. (Original) A device as claimed in claim 13, characterised in that the output polariser (7) transmits light having a polarisation direction oriented at 45° to the first polarisation direction.

15. (Previously Presented) A device as claimed in claim 14, characterised by having an alternative mode of operation in which the output polariser (7) is arranged to pass light from the regions (8) of one of the first and second sets and to attenuate light from the regions (9) of the other of the first and second sets, characterised in that the output polariser (7) is arranged substantially to block light from the other (9) of the first and second sets in the alternative mode, and characterised in that the output polariser (7) is flipped by 180° in the alternative mode so as to transmit light having a polarisation direction substantially orthogonal to the first polarisation direction.

16. (Previously Presented) A device as claimed in claim 12, characterised in that the slow axis of each region (8) of the first set is oriented at 22.5° to the first polarisation direction and the slow axis of each region (9) of the second set is oriented at -22.5° to the first polarisation direction.

17. (Previously Presented) A device as claimed in claim 12, characterised in that the slow axis of each region (8) of the first set is parallel to the first polarisation direction and the slow axis of each region (9) of the second set is oriented at 45° to the first polarisation direction.

18. (Previously Presented) A device as claimed in claim 1, characterised by comprising a further polarisation modifying element (25) between the input and the output polarisers.

19. (Original) A device as claimed in claim 18, characterised in that the further element (25) is a further retarder.

20. (Original) A device as claimed in claim 19, characterised in that the further retarder (25) provides a half wave of retardation at a visible light frequency.

21. (Original) A device as claimed in claim 20, characterised in that the further retarder (25) is a liquid crystal device.

22. (Previously Presented) A device as claimed in claim 20, characterised in that the retarder (5) provides a half wave of retardation at a visible light frequency, characterised in that the slow axis of each region (8) of the first set is oriented at 45° to the first polarisation direction and the slow axis of each region (9) of the second set is parallel to the first polarisation direction, and characterised in that the further retarder (25) has a slow axis oriented at 22.5° to the first polarisation direction.

23. (Original) A device as claimed in claim 22, characterised in that the output polariser (7) transmits light having a polarisation direction parallel to the first polarisation direction.

24. (Previously Presented) A device as claimed in claim 23, characterised in that the output polariser (7) is arranged substantially to block light from the other (9) of the first and second sets in the alternative mode, and characterised in that the further retarder (25) and the output polariser (7) are rotatable as a unit through 180° about an axis parallel to the slow axis of each region (8) of the first set for the alternative mode.

25. (Original) A device as claimed in claim 21, characterised in that the further retarder (25) comprises at least one region whose slow axis is switchable between a first orientation substantially parallel to the first and second light paths and a second orientation substantially perpendicular to the first orientation.

26. (Original) A device as claimed in claim 25, characterised in that the further retarder (25) is a Freedericksz cell.

27. (Previously Presented) A device as claimed in claim 25, characterised in that the output polariser (7) is arranged substantially to block light from the other (9) of the first and second sets in the alternative mode, characterised in that the slow axis of each region (8) of the first set is oriented at 45° to the first polarisation direction and the slow axis of each region (9) of the second set is parallel to the first polarisation direction, and characterised in that the first orientation is for the alternative mode, the second orientation is oriented at 22.5° to the first polarisation direction, and the output polariser (7) transmits light having a polarisation direction perpendicular to the first polarisation direction.

28. (Previously Presented) A device as claimed in claim 25, characterised in that the slow axis of each region (8) of the first set is oriented at 22.5° to the first polarisation direction and the slow axis of each region (9) of the second set is oriented at -22.5° to the first polarisation direction, characterised by comprising a further polarisation modifying element (25) between the input and the output polarisers, and characterised in that the second orientation is for the alternative mode and is oriented at 67.5° to the first polarisation direction and the output polariser (7) transmits light having a polarisation direction perpendicular to the first polarisation direction.

29. (Previously Presented) A device as claimed in claim 25,

characterised in that the output polariser (7) is arranged substantially to block light from the other (9) of the first and second sets in the alternative mode,
characterised in that the slow axis of each region (8) of the first set is parallel to the first polarisation direction and the slow axis of each region (9) of the second set is oriented at 45° to the first polarisation direction, and
characterised in that the second orientation is for the alternative mode and is oriented at 22.5° to the first polarisation direction and the output polariser (7) transmits light having a polarisation direction oriented at 45° to the first polarisation direction.

30. (Previously Presented) A device as claimed in claim 20, characterised in that the further retarder (25) comprises at least one region whose slow axis is switchable between third and fourth orientations substantially perpendicular to the first and second light paths.

31. (Previously Presented) A device as claimed in claim 30, characterised in that the output polariser (7) is arranged substantially to block light from the other (9) of the first and second sets in the alternative mode,
characterised in that the slow axis of each region (8) of the first set is oriented at 22.5° to the first polarisation direction and the slow axis of each region (9) of the second set is oriented at -22.5° to the first polarisation direction, and
characterised in that the third orientation is perpendicular to the first polarisation direction and the fourth orientation is for the alternative mode and is oriented at 67.5° to the first polarisation direction.

32. (Original) A device as claimed in claim 18, characterised in that the further element (25) is a polarisation rotator.

33. (Previously Presented) A device as claimed in claim 32, characterised in that the slow axis of the or each region (8) of the first set is oriented at 45° to the first polarisation direction and the slow axis of the or each region (9) of the second set is parallel to the first polarisation direction, and

characterised in that the rotator (25) comprises at least one region which provides a polarisation rotation of 45° .

34. (Original) A device as claimed in claim 33, characterised in that the rotator (25) comprises a twisted nematic liquid crystal device.

35. (Original) A device as claimed in claim 34, characterised in that the liquid crystal device (25) has an alignment direction (50), at a liquid crystal surface nearer the input polariser (4), parallel to the first polarisation direction and an alignment direction (51), at a liquid crystal surface nearer the output polariser (7), oriented at 45° to the first polarisation direction.

36. (Original) A device as claimed in claim 34, characterised in that the liquid crystal device (25) has an alignment direction (50), at a liquid crystal surface nearer the input polariser (4), oriented at 22.5° to the first polarisation direction and an alignment direction (51), at a liquid crystal surface nearer the output polariser (7), oriented at 112.5° to the first polarisation direction.

37. (Original) A device as claimed in claim 34, characterised in that the liquid crystal device (25) has an alignment direction (50), at a liquid crystal surface nearer the input polariser (4), oriented at 12.5° to the first polarisation direction and an alignment direction (51), at a liquid crystal surface nearer the output polariser (7), oriented at 102.5° to the first polarisation direction.

38. (Previously Presented) A device as claimed in claim 32, characterised in that the output polariser (7) is arranged substantially to block light from the other (9) of the first and second sets in the alternative mode, and characterised in that the polarisation rotator (25) is disableable for the alternative mode.

39. (Previously Presented) A display characterised by comprising a device as claimed in claim 1.

40. (Original) A display as claimed in claim 39, characterised by comprising a spatial light modulator (2).

41. (Original) A display as claimed in claim 40, characterised in that the modulator (2) is a liquid crystal spatial light modulator.

42. (Previously Presented) A display as claimed claim 39, characterised by having an autostereoscopic mode.

43. (Previously Presented) A display as claimed in claim 42, characterised in that the output polariser (7) is arranged substantially to block light from the other (9) of the first and second sets in the alternative mode, and characterised in that the device (25) when in the alternative mode forms a front or rear parallax barrier.